

Claims

[c1] **What is claimed is:**

1. A flameless tracer utilizing heat marking chemicals, for use with a projectile, comprising:
a first heat chemical carried by the projectile for emitting heat visible to an observer during a flight of the projectile; and
a second heat chemical delivered by the projectile, for marking a target upon impact by the projectile.

[c2] 2. The tracer of claim 1, wherein the first heat chemical comprises a chemlucent chemical for emitting light visible to an observer during flight of the projectile.

[c3] 3. The tracer of claim 2, wherein the second heat chemical comprises a chemlucent chemical to mark the target upon impact by the projectile with light visible to the observer.

[c4] 4. The tracer of claim 1, wherein the first and second heat chemicals are contained in a separate bags within the projectile.

[c5] 5. The tracer of claim 4, wherein the separate bags are contained in a containment bag.

- [c6] 6. The tracer of claim 4, wherein the separate bags break during the launch of the projectile, mixing the heat chemicals.
- [c7] 7. The tracer of claim 5, wherein the containment bag does not break during launch or flight of the projectile, but breaks on impact of the projectile with the target, scattering the second heat chemical on the target.
- [c8] 8. The tracer of claim 5, wherein the containment bag does not break during gun launch, flight of the projectile, or impact of the projectile of the target, scattering intact containment bags with the second heat chemical on the target.
- [c9] 9. The tracer of claim 5, wherein the containment bag is installed in the projectile with a sticky substance; and wherein upon the projectile impacting the target, the sticky substance disperses over the target, causing the containment bag to adhere on the target.
- [c10] 10. The tracer of claim 9, wherein the sticky substance is made, at least in part, of silicone.
- [c11] 11. The tracer of claim 1, wherein the first and second heat chemicals are contained in a plurality of glass vials.
- [c12] 12. The tracer of claim 11, wherein the glass vials are re-

strained by a spider.

- [c13] 13. The tracer of claim 11, wherein the first and second chemlucent chemicals are contained in some of the glass vials.
- [c14] 14. The tracer of claim 13, wherein a sticky substance is contained in some glass vials; and wherein upon the projectile impacting the target, the sticky substance disperses over the target, causing the first and second chemlucent chemicals to adhere on the target.
- [c15] 15. The tracer of claim 12, wherein the glass vials are restrained by the spider and placed with the second heat chemical in the projectile.
- [c16] 16. The tracer of claim 15, wherein the glass vials break during gun launch of the projectile, mixing the first and second heat chemicals and the sticky substance.
- [c17] 17. The tracer of claim 1, wherein the projectile is made at least in part, of a heat conducting material, allowing the heat chemicals to trace a projectile path in addition to marking the target.
- [c18] 18. The tracer of claim 1, wherein the projectile is made at least in part, of any one of a transparent or translu-

cent material wherein the optional chemlucent chemicals trace a projectile path in addition to marking the target.

- [c19] 19. A flameless marker utilizing heat marking chemicals, for use with a projectile, comprising:
 - a first heat chemical carried by the projectile for emitting heat visible to an observer during a flight of the projectile; and
 - a second heat chemical delivered by the projectile, for marking a target upon impact by the projectile.
- [c20] 20. The marker of claim 19, wherein the first heat chemical comprises a chemlucent chemical for emitting light visible to an observer during flight of the projectile.
- [c21] 21. The marker of claim 20, wherein the second heat chemical comprises a chemlucent chemical to mark the target upon impact by the projectile with light visible to the observer.
- [c22] 22. The marker of claim 19, wherein the first and second heat chemicals are contained in a separate bags within the projectile.
- [c23] 23. The marker of claim 22, wherein the separate bags are contained in a containment bag.
- [c24] 24. The marker of claim 22, wherein the separate bags

break during the launch of the projectile, mixing the heat chemicals.

- [c25] 25. The marker of claim 23, wherein the containment bag does not break during launch or flight of the projectile, but breaks on impact of the projectile with the target, scattering the second heat chemical on the target.
- [c26] 26. The marker of claim 23, wherein the containment bag does not break during gun launch, flight of the projectile, or impact of the projectile of the target, scattering intact containment bags with the second heat chemical on the target.
- [c27] 27. The marker of claim 23, wherein the containment bag is installed in the projectile with a sticky substance; and
wherein upon the projectile impacting the target, the sticky substance disperses over the target, causing the containment bag to adhere on the target.
- [c28] 28. The marker of claim 27, wherein the sticky substance is made, at least in part, of silicone.
- [c29] 29. The marker of claim 19, wherein the first and second heat chemicals are contained in a plurality of glass vials.
- [c30] 30. The marker of claim 29, wherein the glass vials are

restrained by a spider.

- [c31] 31. The marker of claim 29, wherein the first and second chemlucent chemicals are contained in some of the glass vials.
- [c32] 32. The marker of claim 31, wherein a sticky substance is contained in some glass vials; and wherein upon the projectile impacting the target, the sticky substance disperses over the target, causing the first and second chemlucent chemicals to adhere on the target.
- [c33] 33. The marker of claim 32, wherein the glass vials are restrained by the spider and placed with the second heat chemical in the projectile.
- [c34] 34. The marker of claim 33, wherein the glass vials break during gun launch of the projectile, mixing the first and second heat chemicals and the sticky substance.
- [c35] 35. The marker of claim 19, wherein the projectile is made at least in part, of a heat conducting material, allowing the heat chemicals to trace a projectile path in addition to marking the target.
- [c36] 36. The marker of claim 19, wherein the projectile is made at least in part, of a transparent material wherein

the optional chemlulent chemicals trace a projectile path in addition to marking the target.

- [c37] 37. The marker of claim 35, wherein the projectile is made at least in part, of a non-conducting material, wherein no heat trace is seen of the projectile flight to the target but only a heat mark is detected on the target after projectile impact with the target.
- [c38] 38. The marker of claim 36, wherein the projectile is made at least in part, of a non-conducting material, wherein no heat trace is seen of the projectile flight to the target but only a heat mark is detected on the target after projectile impact with the target.
- [c39] 39. A flameless tracer utilizing heat marking chemicals, for use with a plurality of projectiles, comprising:
 - a first heat chemical carried by the plurality of projectiles for emitting heat visible to an observer during a flight of the plurality of projectiles; and
 - a second heat chemical delivered by the plurality of projectiles, for marking a target upon impact by the plurality of projectiles.40. A flameless marker utilizing heat marking chemicals, for use with a plurality of projectiles, comprising:
 - a first heat chemical carried by the plurality of projectiles for emitting heat visible to an observer during a flight of

the plurality of projectiles; and
a second heat chemical delivered by the plurality of pro-
jectiles, for marking a target upon impact by the plurality
of projectiles.